

WHAT IS CLAIMED IS:

1. A washing machine comprising:
a tub;
a sensor positioned and configured to sense a conductivity of a fluid in said tub; and
a controller operatively coupled to said sensor for controlling an amount of the fluid in said tub based on the conductivity of the fluid.
2. A washing machine according to Claim 1, wherein said sensor positioned within said tub.
3. A washing machine according to Claim 1, wherein said sensor positioned outside said tub.
4. A washing machine according to Claim 1, wherein said sensor is configured to sense an initial conductivity of the fluid during a wash cycle without detergent.
5. A washing machine according to Claim 4, wherein said sensor is further configured to sense a final conductivity of said fluid after a wash cycle with detergent.
6. A washing machine according to Claim 5, wherein said controller is configured to determine a desirable achievable rinse level by calculating the difference between the initial conductivity and the final conductivity.
7. A washing machine according to Claim 1, wherein said controller is configured to measure the conductivity of the fluid sensed by said sensor during a wash cycle.
8. A washing machine according to Claim 7, wherein said controller is configured to measure the conductivity of the fluid sensed by said sensor over at least a 3 second period.
9. A washing machine according to Claim 7, wherein said controller is configured to calculate an overall change of conductivity of said fluid.
10. A washing machine according to Claim 9, wherein said controller is configured to compare the overall change of conductivity with said desirable achievable rinse level.

11. A method for rinsing a tub of a washing machine with a fluid, said method comprising:
 - sensing a conductivity of the fluid with a sensor during a wash cycle;
 - rinsing the tub of the washing machine with the fluid based on the conductivity of the fluid.
12. A method according to Claim 11, wherein said sensing the conductivity of the fluid further comprises sensing an initial conductivity of the fluid during a wash cycle without detergent.
13. A method according to Claim 12, wherein said sensing the conductivity of the fluid, further comprises sensing a final conductivity of the fluid after a wash cycle with detergent.
14. A method according to Claim 13, further comprising calculating the difference between the initial conductivity and the final conductivity to determine a desirable achievable rinse level.
15. A method according to Claim 11, wherein sensing the conductivity of the fluid further comprises sensing the conductivity of the fluid for at least a three second period.
16. A method according to Claim 14, wherein sensing the conductivity of the fluid further comprises sensing an average conductivity.
17. A method according to Claim 16, further comprising calculating an overall change of conductivity of the fluid.
18. A method according to Claim 17, further comprising comparing the overall change of conductivity to an acceptable change percentage of the desirable achievable rinse level.
19. A method according to Claim 18, further comprising ceasing rinsing of the tub if the overall change of conductivity is greater than an acceptable change percentage of the desirable achievable rinse level.

20. A method according to Claim 18, further comprising adding fluid to the tub and rinsing the tub until the overall change of conductivity is greater than the acceptable change percentage of the desirable achievable rinse level.

21. A control system for a washing machine, the washing machine including a tub for holding a fluid, said control system configured to sense the conductivity of said fluid, measure an average conductivity of said fluid, and rinse the tub based on the conductivity of said fluid.

22. The control system according to Claim 21, wherein said control system is further configured to calculate an overall change of conductivity and compare the overall change of conductivity with a desirable achievable rinse level.

23. The control system according to Claim 22, wherein said control system is further configured to add said fluid to said tub and rinse the tub until the overall change of conductivity is greater than an acceptable change percentage of the desirable achievable rinse level.